

Response
Serial No. 10/089,076
Attorney Docket No. 020473

REMARKS

Claims 1 - 23 are pending in the present application. By this Amendment, claims 5, 13 - 18 have been amended and new claims 24 and 25 have been added. No new matter has been added. It is respectfully submitted that this Amendment is fully responsive to the Office Action dated September 14, 2005.

Allowable Subject Matter:

Applicants gratefully acknowledge that claim 15 has been allowed.

In addition, applicants also gratefully acknowledge that claims 4 and 20/1 would be allowable if amended to include the features of base claim 1, and that claims 5-12, 16-18 and 19-23 would be allowable if rewritten or amended to overcome the claim objections discussed below (when multiple dependent claims 19 and 21-23 depend from claims 5 or 15).

However, for at least the reasons discussed below, it is submitted that all of claims 1-25 are allowable.

Drawings:

The drawings stand objected to for the specific reasons set forth in items 2-3 of the Office Action.

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With regard to item 2, it is submitted that Fig. 4 has been amended by replacing " $E_{kl}(t)$ " with " $Y_{kl}(t)$ ", as suggested by the Examiner. In addition, Fig. 18 has been amended in the same manner as Fig. 4.

In addition, it is submitted that page 47 of the specification has been amended to include reference numeral 17 so as to overcome the objection in item 3 of the outstanding Action.

Accordingly, withdrawal of the objections to the drawings is respectfully requested.

Claim Objections:

Claims 5-14 and 16-23 stand objected to for the specific reasons set forth in items 4a-4h of the Action.

With regard to items 4a and 4b, it is submitted that claims 5 and 13 have been amended in the manner suggested by the Examiner, respectively.

With regard to item 4c, it is submitted that claims 13 and 14 have been amended to distinguish the signal extracting means, estimating means, operating means and error determining means of claim 13 from those recited in claim 14.

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With regard to item 4d, it is submitted that claim 13, line 5, has been amended to recite “a first stage of interference canceller, including,” in order to overcome this portion of the objection.

With regard to items 4e and 4f, it is submitted that claims 15 and 16 have each been amended in a similar manner to claims 13 and 14 as discussed above with regard to items 4c and 4d, respectively.

With regard to items 4g and 4h, it is submitted that claims 17 and 18 have been amended and new claims 24 and 25 have been added to overcome these portions of the objection.

Accordingly, withdrawal of the objections to the claims is respectfully requested.

As to the Merits:

As to the merits of this case, the Examiner sets forth the following rejections:

- 1) claims 1-3, 13, 21, 22 and 23 stand rejected under 35 USC 103(a) as being unpatentable over Suzuki (U.S. Patent NO. 6,584,115) in view of Keskitalo (U.S. Patent No. 6,091,788); and
- 2) claim 19 stands rejected under 35 USC 103(a) as being unpatentable over Suzuki in view of Keskitalo and further in view of Ishii et al. (U.S. Patent No. 6,222,498).

Each of these rejections is respectfully traversed.

Independent Claim 1:

Independent claim 1 calls for *signal processing means for performing a prescribed signal processing on the signals received by said plurality of antennas;*

a plurality of first signal extracting means for extracting signal components corresponding to said plurality of users, respectively, based on a signal output from said signal processing means;

a plurality of first estimating means for estimating parameter information related to relation between the signal components extracted by said first signal extracting means and the signal output from said signal processing means;

a plurality of first error determining means for determining whether the signal components corresponding to the plurality of users extracted by said first signal extracting means include a demodulation error or not, respectively; and

first operating means for subtracting, from the signal output from said signal processing means, said extracted signal component determined by said first error determining means not to include any demodulation error, in consideration of corresponding said parameter information.

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With regard to claim 1, the Examiner asserts in the bridging paragraph between pages 4 and 5 of the Action that Suzuki discloses:

an example of one interference canceller shown in Fig. 5, where the interference cancellers 41a-41c are comprised of a plurality of signal extracting means 23 for extracting signal components corresponding to the plurality of users, a plurality of estimating means 24 for estimating parameter information, a plurality of error determining means (quality comparison controller 32) for determining whether the signal components include a demodulation error and providing such indication to the interference unit of a preceding block, and the reception system further comprises operating means which include subtractor 54 and adder 57.

However, the Examiner is mis-characterizing the teachings of Suzuki. More specifically, while the ICU 12a of Fig 5 of Suzuki may include an integrator 23, the integrator 23 does not perform the function of extracting signal components corresponding to a plurality of users based on a signal output from a signal processing means, as called for in claim 1.

In addition, while the ICU 12a of Fig 5 of Suzuki may include an estimator 24, the estimator 24 fails to estimate parameter information related to a relation between extracted signal components and the output signal from the signal processing means, since, as discussed above, integrator 23 fails to extract signal components and the estimator 24 does not receive an output signal from the signal processing means.

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Further, the quality comparison controller 32 of Suzuki does not determine whether the extracted signal components include a demodulation error or not, as called for in claim 1.

Instead, according to Suzuki:

The quality comparison controller 32 compares the Eb/No measured by the Eb/No measuring unit 34 with the Eb/No of the received signal 1 which has been supplied as the reception quality signal 14a, and outputs a control signal 15₃ if the Eb/No measured by the Eb/No measuring unit 34 is more degraded than the Eb/No of the received signal 1, as determined from the result of the comparison. (See, col. 9, lines 8-14).

Finally, it is respectfully submitted that the subtractor 54 and adder 57 disclosed by Suzuki fails to constitute *operating means for subtracting, from the signal output from said signal processing means, said extracted signal component determined by said first error determining means not to include any demodulation error, in consideration of corresponding said parameter information*, as called for in claim 1.

Moreover, it is submitted that the secondary reference of Keskitalo fails to disclose the above-note drawbacks and deficiencies of Suzuki with regard to the features of claim 1 concerning *a plurality of first signal extracting means for extracting signal components corresponding to said plurality of users, respectively, based on a signal output from said signal processing means; a plurality of first estimating means for estimating parameter information related to relation between the signal components extracted by said first signal extracting means and the signal output from said signal processing means; a plurality of first error determining means for determining whether the signal components corresponding to the plurality of users*

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extracted by said first signal extracting means include a demodulation error or not, respectively; and first operating means for subtracting, from the signal output from said signal processing means, said extracted signal component determined by said first error determining means not to include any demodulation error, in consideration of corresponding said parameter information.

Independent Claim 13:

Independent claim 13 calls for, inter alia, each stage of said interference removing units includes first signal extracting means for extracting signal component corresponding to a specific user, different stage by stage, among said plurality of users based on an input signal, first estimating means for estimating parameter information related to relation between the signal component extracted by said first signal extracting means and the signal input to said first signal extracting means, first operating means for removing the signal component corresponding to said specific user, from the signal input to said first signal extracting means in consideration of said first parameter information, and first error determining means for determining whether the signal component corresponding to said specific user includes a demodulation error or not

As discussed above, with regard to claim 1, the combination of Suzuki and Keskitalo fail to disclose or fairly suggest these features.

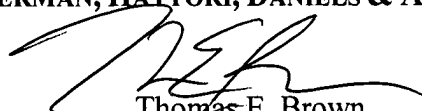
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In view of the aforementioned amendments and accompanying remarks, Applicants submit that the claims, as herein amended, are in condition for allowance. Applicants request such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,
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AMENDMENTS TO THE DRAWINGS

The attached Replacement Sheets of Drawings include changes to Figs. 4 and 18. More specifically, in Figs. 4 and 18, " $E_{kl}(t)$ " has been replaced with " $Y_{kl}(t)$ ".